17. Analyze any two Classic Problems of Synchronization.

18. Explicate the Demand Paging with address Translation Mechanism. How a page table is implemented?

19. Explain the following concepts in Disk Management:

    (a) Disk Initialization

    (b) Booting from Disk

20. Describe the concepts of Memory Management in Linux.

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APRIL/MAY2025

CCA52/CCS52/CSC52/FCA52/FCS52/FSC52 — OPERATING SYSTEM

Time : Three hours Maximum : 75 marks

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SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is an operating system?

2. Differentiate between Multi Programming and Non-Multi Programming.

3. Define Semaphore.

4. State the conditions under which a deadlock situation may arise.

5. What is the use of Overlays?

6. Define Fragmentation.

7. What ate Logical Address Space?

8. State the Operations that can be performed on a Directory.

9. Write the goals of Linux Operating System.

10. Define scheduling in LINUX.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Summarize about the Storage structure in a Computer System.

Or

(b) Narrate the various Operations on Process.

12. (a) Consider the following set of processes, with the length of the CPU burst given in milliseconds.

Process	Burst Time
P1	6
P2	8
P3	7
P4	3

What is the waiting time of each process and also find the average waiting time using SJF scheduling?

Or

(b) Discuss about the Deadlock Prevention approaches.

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13. (a) Explicate the concept of Segmentation.

Or

(b) Consider a Logical address space of eight pages of 1024, words each, mapped onto a Physical memory of 32 Frames. How many bits are there in the Logical address and in the Physical address?

14. (a) Examine the aspects of File Sharing.

Or

(b) Write short notes on Free Space Management.

15. (a) Write an account on the Linux File Systems.

Or

(b) Briefly describe the Physical and Virtual Memory Management techniques in the Linux Kernel.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Enumerate the system components of an Operating System and explain each of them in detail.